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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Masaki YAMAMOTO

Application No.: 09/890,143

Group Art Unit: 2882

Filed: July 26, 2001

Examiner: Chih Cheng G. Kao

Confirmation No.: 7584

For:

OPTICAL ELEMENT SUCH AS MULTILAYER FILM REFLECTION MIRROR,

PRODUCTION METHOD THEREFOR AND DEVICE USING IT

## **INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents PO Box 1450 Alexandria, VA 22313-1450

Sir:

1.

In accordance with the duty of disclosure provisions of 37 CFR § 1.56, there is hereby provided certain information which the Examiner may consider material to the examination of the subject U.S. patent application. It is requested that the Examiner make this information of record if it is deemed material to the examination of the subject application.

Enclosures accompanying this Information Disclosure Statement are:

1a. 🛚	Form PTO-1449.
1b. 🛚	Copy(ies) of IDS citation(s), except for U.S. Patents and U.S. Patent Application publications.
1c. 🔲	English language copy of a communication(s) from a foreign Patent Office or a PCT International Search Report.
1d. 🔲	English language translation (complete, Abstract or relevant portion(s)) attached to non-English language publications as indicated on the attached Form PTO-1449.
1e. 🗵	Explanations of Relevancy of References (ATTACHMENT 1(e), hereto).
	List of Copending Applications (ATTACHMENT 1(f), hereto).
1g. 🔲	List of Additional Submitted Documents (ATTACHMENT 1(g), hereto).
This Infor	mation Disclosure Statement is filed under 37 CFR § 1.97(b):
	(Check either Item 2a or 2b or 2c or 2d)
2a. 🔲	Within three months of the filing date of a national application;
2b. 🗌	Within three months of the date of entry of the national stage as set forth in § 1.491 in an international application.
2c. 🗌	Before the mailing of a first Office Action on the merits; or
2d.	Before the mailing of a first Office Action after the filing of a Request for Continued Examination under § 1.114.
	1b.



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3.	specified i	mation Disclosure Statement is filed under 37 CFR § 1.97(c) after the period in paragraph 2 above but before the mailing date of any of a Final Office der § 1.113, a Notice of Allowance under § 1.311 or an action that otherwise secution in the application, AND  (Check either Item 3a or 3b; Item 3b to be checked if
		any reference known for more than 3 months)
	3a.	The § 1.97(e) Statement in Item 5 below is applicable; OR The \$180.00 fee set forth in 37 CFR § 1.17(p) is:  enclosed.
		to be charged to Deposit Account No. 19-3935.
4.	specified i	mation Disclosure Statement is filed under 37 CFR § 1.97(d) after the period in paragraph 3 above, but on or before payment of the Issue Fee, AND The § 1.97(e) Statement in Item 5 below is applicable; AND The \$180.00 fee set forth in 37 CFR § 1.17(p) is:  enclosed to be charged to Deposit Account No. 19-3935.
_	<b>0</b>	
5.	Statement	t under § 1.97(e) ( <i>applicable if Item 3a or Item 4a is checked</i> )
	5a. 🔲	(Check either Item 5a or 5b) In accordance with 37 CFR § 1.97(e)(1), it is stated that each item of
	Ја	information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.
	5b.	In accordance with 37 CFR § 1.97(e)(2), it is stated that no item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in this Information Disclosure Statement was known by any individual designated in § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement.
6.	This is a control of the control of	continuation/divisional/continuation-in-part application under 37 CFR §
		(Check appropriate Items 6a and/or 6b)
	6a. 🗍	Copies of the publications listed on the attached Form PTO-1449 which were previously cited in prior application Serial No, filed on, and which is relied on for an earlier effective filing date for the subject application under 35 U.S.C. § 120, have been omitted pursuant to 37 CFR § 1.98(d).
	6b.	Copies of the publications listed on the attached Form PTO-1449 which were not previously cited in prior application Serial No, filed on, and which is relied on for an earlier effective filing date for the subject application under 35 U.S.C. § 120, are provided herewith.

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<b>7</b> .	$\boxtimes$	This	is a l	Request for Continued Examination under 37 CFR § 1.114.
				(Check either Item 7a or 7b)
		7a. 7b.		The Issue Fee has not been paid.  A Petition to Withdraw from issue under 37 CFR § 1.313(c) is filed concurrently herewith or has been granted. A Request for Continued Examination under 37 CFR § 1.114, after payment of the Issue Fee, is proper in accordance with 37 CFR § 1.114(a), respectively.
8.		This	is a S	Supplemental Information Disclosure Statement.
<b>.</b>		11110	10 a ·	(Check either Item 8a or 8b)
		8a.		This Supplemental Information Disclosure Statement under 37 CFR § 1.97(f) supplements the Information Disclosure Statement filed on A bona fide attempt was made to comply with 37 CFR § 1.98, but inadvertent omissions were made. These omissions have been corrected herein. Accordingly, additional time is requested so that this Supplemental IDS can
		8b.		be considered as if properly filed on  This Supplemental Information Disclosure Statement is timely filed within one (1) month of the Notice under 37 CFR §§ 1.97 and 1.98, mailed
9.				nce with 37 CFR § 1.98, a concise explanation of what is presently to be the relevance of each non-English language publication is:
				(Check appropriate Items 9a, 9b, 9c and/or 9d)
		9a.		satisfied for the non-English language publication(s) cited on the enclosed "English language version of the search report or action which indicates the degree of relevance found by the foreign office". (See MPEP § 609, Minimum Requirements for an Information Disclosure Statement, Part A(3): Concise Explanation of Relevance, 8th Ed., Rev. 2)
		9b. 9c.	=	set forth in the application. satisfied for the non-English language publication(s) indicated on the attached Form PTO-1449 as having an English language translation (complete or relevant portion(s)) attached thereto.
		9d.		enclosed as Attachment 1(e), hereto.
10.	be se	e, mat earch	terial repo	on is made that the information cited in this Statement is, or is considered to to to patentability nor a representation that a search has been made (other than rt(s) from a counterpart foreign application or a PCT International Search bmitted herewith). 37 CFR §§ 1.97(g) and (h).

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11. The Commissioner is authorized to credit any overpayment or charge any additional fee required under 37 CFR § 1.17 for this Information Disclosure Statement to Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Dated: 1201 New York Ave., N.W., 7th Floor

Washington, D.C. 20005 Telephone: (202) 434-1500 Facsimile: (202) 434-1501 David M. Pitcher

Registration No. 25,908

EXPLANATIONS	OF	RELEVANCY	
OF REFE	RE	NCES	

	ATTACHMENT 1(e)
ATTORNEY DOCKET NO.	APPLICATION NO.
0862.1463	09/890,143
FIRST NAMED INVENTOR	
Masaki YAMAMOTO	
FILING DATE	GROUP ART UNIT
July 26, 2001	2882

References AC & AD – as presently advised, References AC & AD are publications published after the corresponding International Application No. PCT/JP00/05571 (August 18, 2000) for the subject national stage §371 application.

**U.S. PATENT DOCUMENTS** 

1	INITIAL		DOCUMENT NO.	DATE	NAME	CLASS	SUB- CLASS	FILING DATE
		AA						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NO.	DATE	COUNTRY	TRANSLATION YES NO	ABSTRACT	
	AB						

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)				
		YES	NO	
AC	M. Yamamoto, "Sub-nm FIGURE ERROR CORRECTION OF AN EUV MULTILAYER MIRROR BY ITS SURFACE MILLING", 7th International Conference on Synchrotron Radiation Instrumentation, Book of Abstracts (August 21-25, 2000), pp.1-2.	X		
AD	M. Yamamoto, "Sub-nm figure error correction of an extreme ultraviolet multilayer mirror by its surface milling", Nuclear Instruments and Methods in Physics Research A 467-468 (2001), pp. 1282-1285.	Х		
AE	M. Yamamoto and T. Namioka,"Layer-by-layer design method for soft-x-ray mulitlayers", Applied Optics, Vol. 31, No. 10, 1 April 1992, pp. 1622-1630.	Х		
AF	J. Braat, "Phase correcting layers in EUV imaging system for microlithography", Proceedings of the OSA TOPS on Extreme Ultraviolet Lithography, Optical Society of America (1996), pp.152-155.	Х		
AG	H. Kinoshita, et al., "Soft x-ray reduction lithography using multilayer mirrors", J. Vac. Sci. Technol. B 7 (6), Nov/Dec 1989, pp. 1648-1651.	Х		
АН	C. Gwyn et al., "Extreme ultraviolet lithography", J. Vac. Sci. Technol. B 16(6), Nov/Dec 1998, pp. 3142-3149.	Х		
Al	R. Stuik, et al., "Peak and integrated reflectivity, wavelength and gamma optimization of MO/Si, and Mo/Be multilayer, multilayer, multilelement optics for extreme ultraviolet lithography", J. Vac. Sci. Technol. B 17(6), Nov/Dec 1999, pp. 2998-3002.	X		
AJ	P. H. Berning, "Physics of Thin Films", Advances in Research and Development, Volume 1 (1963), pp. 84-100.	Х		

EXAMINER	DATE CONSIDERED
*EXAMINER: Initial if reference considered, whether or not citation if not in conformance and not considered. Include copy of	